

CLAIMS

1. An extended or controlled release encapsulated product, comprising:

- 5           a) at least one active ingredient;  
              b) at least one erodible polymer; and  
              c) at least one lubricating material; and  
              d) wherein said product is in the form of a caplet  
having a diameter from about 1 millimeter to about 7 millimeters  
10 and a length from about 1 millimeter to about 7 millimeters.

15           2. The extended or controlled release encapsulated product  
of claim 1 wherein said erodible polymer is a water soluble  
polymer.

20           3. The extended or controlled release encapsulated product  
of claim 2 wherein said water soluble polymer is selected from  
the group consisting of sodium carboxymethyl cellulose,  
hydroxyethyl cellulose, hydroxypropyl cellulose, propylene  
glycol alginate, sodium alginate, carboxymethyl cellulose and  
mixtures thereof.

25           4. The extended or controlled release encapsulated product  
of claim 1 wherein said erodible polymer is a water insoluble  
polymer.

30           5. The extended or controlled release encapsulated product  
of claim 4 wherein said water insoluble polymer is selected from  
the group consisting of cellulose acetate, ethyl cellulose,  
cellulose acetate methyl carbamate, methylcarbamate,  
polydiethylaminomethylstyrene, ethyl cellulose, cellulose  
acetate, cellulose diacetate, cellulose triacetate, cellulose

alkanylate, monoalkenytes, dialkenytes, trialkenytes, mono-, di- and tri-arolyates, cellulose trivalerate, cellulose trioctanoate, cellulose tripionate, cellulose diesters, cellulose disuccinate, cellulose acetate valerate, cellulose 5 acetaldehyde, dimethylcellulose acetate, cellulose dimethylaminoacetate, semipermeable sulfonated polystyrenes, semipermeable styrenes, and mixtures thereof.

6. The extended or controlled release encapsulated product  
10 of claim 1 wherein said lubricating material is selected from the group consisting of: fats, emulsifiers, waxes, magnesium stearate, calcium stearate, talc, starches, silicon dioxide, and mixtures thereof.

15 7. The extended or controlled release encapsulated product of claim 1 wherein said diameter is about 3 millimeters and said length is about 3 millimeters.

20 8. The extended or controlled release encapsulated product of claim 1 wherein said product provides controlled release of said active ingredient.

25 9. The extended or controlled release encapsulated product of claim 1 wherein the product is coated with a polymeric material.

30 10. The extended or controlled release encapsulated product of claim 1 wherein the product is shaped in a manner to have a crown which has a thinner polymer coating than the rest of the caplet.

11. The extended or controlled release encapsulated product

of claim 1 wherein said active ingredient is a pharmaceutical.

12. The encapsulated product of claim 11 wherein said pharmaceutical is selected from the group consisting of:  
5 antitussives, antihistamines, decongestants, alkaloids, mineral supplements, laxatives, antacids, ion exchange resins, anti-cholesterolemics, antiarrhythmics, antipyretics, analgesics, appetite suppressants, expectorants, anti-anxiety agents, anti-ulcer agents, anti-inflammatory substances,  
10 coronary dilators, cerebral dilators, peripheral vasodilators, anti-infectives, psychotropics, antimanicics, stimulants, gastrointestinal agents, sedatives, anti-diarrheal preparations, anti-anginal drugs, vasodialators, anti-hypertensive drugs, vasoconstrictors, migraine treatments, antibiotics,  
15 tranquilizers, anti-psychotics, antitumor drugs, anticoagulants, antithrombotic drugs, hypontics, anti-emetics, anti-nausants, anti-convulsants, neuromuscular drugs, hyper- and hypoglycemic spasmodics, uterine relaxants, mineral and nutritional additives, antiobesity drugs, anabolic drugs, erythropoetic drugs,  
20 antiashmatics, cough suppressants, mucolytics, anti-uricemic drugs and mixtures thereof.

13. The encapsulated product of claim 12, wherein the said pharmaceutical is a psychotropic.

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14. The encapsulated product of claim 13, wherein said psychotropic is a anti-anxiety therapeutic.

15. The encapsulated product of claim 13, wherein said  
30 psychotropic is an insomnia therapeutic.

16. The encapsulated product of claim 13, wherein said

psychotropic is an antidepressant.

17. The encapsulated product of claim 16, wherein said antidepressant is selected from the group consisting of  
5 Fluoxetine HCl, Paroxetine HCl, Sertraline HCl, and Venlafaxine HCl, Amitriptyline, Nortriptyline, Imipramine, Desipramine, Doxepin, Trimipramine, Clomipramine, Protriptyline, Amoxapine, Maprotiline, Phenelzine, Tranylcypromine, Fluvoxamine, Venlafaxine, Trazodone, Nefazodone, Mirtazapine, Bupropion, or  
10 mixtures thereof.

18. The encapsulated product of claim 17, wherein said pharmaceutical is Fluoxetine HCl.

15 19. The encapsulated product of claim 12, wherein said pharmaceutical is a gastrointestinal therapeutic.

20 20. The encapsulated product of claim 19, wherein said gastrointestinal therapeutic is a ulcer therapeutic.

25 21. The encapsulated product of claim 20, wherein said ulcer therapeutic is selected from the group consisting of Omeprazole, Lansoprazole, Ranitidine HCl, Famotidine, Nizatidine, Teprenone, Cimetidine, Rabeprazole sodium, Sulpiride, or mixtures thereof.

22. The encapsulated product of claim 21, wherein said ulcer therapeutic is Omeprazole.

30 23. The encapsulated product of claim 19, wherein said gastrointestinal therapeutic is a anti-emetic.

24. The encapsulated product of claim 23, wherein said anti-emetic is selected from the group consisting of Ondansetron HCl, Granisetron HCl, dimenhydrinate, Tropisetron, Dolasetron mesylate, Cisapride, Sulfasalazine, Balsalazide, Infliximab, or  
5 mixtures thereof.

25. The encapsulated product of claim 24, wherein said anti-emetic is dimenhydrinate.

10 26. The encapsulated product of claim 19, wherein said gastrointestinal therapeutic is a anti-diarrheal therapeutic.

15 27. The encapsulated product of claim 26, wherein said anti-diarrheal therapeutic is selected from the group consisting of Loperamide HCl, diphenoxylate, codeine phosphate, camphorated opium tincture, or mixtures thereof.

20 28. The encapsulated product of claim 27, wherein said anti-diarrheal therapeutic is Loperamide HCl

29. The encapsulated product of claim 12, wherein said pharmaceutical is a migraine therapeutic.

25 30. The encapsulated product of claim 29, wherein said migraine therapeutic is selected from the group consisting of sumatriptan succinate, amitriptyline, methysergide, propranolol, valproate, verapamil, dihydroergotamine, ergotamine, metoclopramide, naratriptan, prochlorperazine, rizatriptan benzoate, zolmitriptan, eletriptan, acetaminophen, aspirin,  
30 NSAID's, opioids, or mixtures thereof.

31. The encapsulated product of claim 30, wherein said migraine therapeutic is sumatriptan succinate.

32. The encapsulated product of claim 12, wherein said 5 pharmaceutical is a therapeutic for the treatment of hypertension.

33. The encapsulated product of claim 32, wherein said therapeutic is selected from the group consisting of nifedipine, 10 amlodipine besylate, losartan potassium, lisinopril, felodipine, benazepril HCl, ramipril, irbesartan, verapamil HCl, bisoprolol fumarate and hydrochlorothiazide, amlodipine and benazepril HCl, clonidine, candesartan, cilexetil, diltiazem, nicardipine, imidapril, trandolapril, eprosartan mesylate, nilvadipine, 15 verapamil HCl, temocapril, prazosin HCl, isradipine, cilazapril, celiprolol, bisoprolol, betazolol HCl, ramipril, nisoldipine, lisinopril, trandolapril, and nisoldipine.

34. The encapsulated product of claim 33, wherein said 20 therapeutic is nifedipine.

35. A pulsating release encapsulated product, comprising:  
a) at least one active ingredient;  
b) at least two erodible polymers, each of said  
25 erodible polymers having a different rate of dissolution or  
dissolving at a different pH; and  
c) at least one lubricating material; and  
d) wherein said product is in the form of a caplet  
having a diameter from about 1 millimeter to about 7 millimeters  
30 and a length from about 1 millimeter to about 7 millimeters.

36. The pulsating release encapsulated product of claim 35

wherein said erodible polymer is a water soluble polymer.

37. The pulsating release encapsulated product of claim 36  
wherein said water soluble polymer is selected from the group  
5 consisting of sodium carboxymethyl cellulose, hydroxyethyl  
cellulose, hydroxypropyl cellulose, propylene glycol alginate,  
sodium alginate, carboxymethyl cellulose and mixtures thereof.

38. The pulsating release encapsulated product of claim 35  
10 wherein said erodible polymer is a water insoluble polymer.

39. The pulsating release encapsulated product of claim 38  
wherein said water insoluble polymer is selected from the group  
consisting of cellulose acetate, ethyl cellulose, cellulose  
acetate methyl carbamate, methylcarbamate,  
215 polydiethylaminomethylstyrene, ethyl cellulose, cellulose  
acetate, cellulose diacetate, cellulose triacetate, cellulose  
alkanylate, monoalkenytes, dialkenytes, trialkenytes, mono-, di-  
and tri-arolyates, cellulose trivalerate, cellulose  
220 trioctanoate, cellulose tripionate, celluslose diesters,  
cellulose disuccinate, cellulose acetate valerate, cellulose  
acetaldehyde, dimethylcellulose acetate, cellulose  
dimethylaminoacetate, semipermeable sulfonated polystyrenes,  
semipermeable styrenes, and mixtures thereof.

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40. The pulsating release encapsulated product of claim 35  
wherein said lubricating material is selected from the group  
consisting of: fats, emulsifiers, waxes, magnesium stearate,  
calcium stearate, talc, starches, silicon dioxide, and mixtures  
30 thereof.

41. The pulsating release encapsulated product of claim 35

wherein said diameter is about 3 millimeters and said length is about 3 millimeters.

42. The pulsating release encapsulated product of claim 35  
5 wherein said product provides controlled release of said active ingredient.

43. The pulsating release encapsulated product of claim 35  
wherein the product is coated with a polymeric material.

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44. The pulsating release encapsulated product of claim 35  
wherein the product is shaped in a manner to have a crown which has a thinner polymer coating than the rest of the caplet.

15 45. The pulsating release encapsulated product of claim 35  
wherein said active ingredient is a pharmaceutical.

20 46. The pulsating release product of claim 45 wherein said pharmaceutical is selected from the group consisting of:  
antitussives, antihistamines, decongestants, alkaloids, mineral supplements, laxatives, antacids, ion exchange resins, anti-cholesterolemics, antiarrhythmics, antipyretics, analgesics, appetite suppressants, expectorants, anti-anxiety agents, anti-ulcer agents, anti-inflammatory substances,  
25 coronary dilators, cerebral dilators, peripheral vasodilators, anti-infectives, psychotropics, antimemics, stimulants, gastrointestinal agents, sedatives, anti-diarrheal preparations, anti-anginal drugs, vasodialators, anti-hypertensive drugs, vasoconstrictors, migraine treatments, antibiotics,  
30 tranquilizers, anti-psychotics, antitumor drugs, anticoagulants, antithrombotic drugs, hypontics, anti-emetics, anti-nausants, anti-convulsants, neuromuscular drugs, hyper- and hypoglycemic

spasmodics, uterine relaxants, mineral and nutritional additives, antiobesity drugs, anabolic drugs, erythropoetic drugs, antiashmatics, cough suppressants, mucolytics, anti-uricemic drugs and mixtures thereof.

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47. A pulsating release product, comprising a capsule having a plurality of caplets, said caplets comprising:

- a) at least one active ingredient;
- b) at least one erodible polymer;
- c) at least one lubricating material; and
- d) wherein said caplet has a diameter from about 1 millimeter to about 7 millimeters and a length from about 1 millimeter to about 7 millimeters; and

wherein at least one of said plurality of caplets is prepared from an erodible polymer having a first dissolution rate, and at least another of said plurality of caplets is prepared from another erodible polymer having a second dissolution rate, and said first dissolution rate is not equal to said second dissolution rate.